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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/593,593	06/13/2000	Mark A. Lemkin	IMIN-01005US1	5628

28554 7590 04/27/2005

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EXAMINER

KWOK, HELEN C

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/593,593

Applicant(s)

LEMKIN ET AL.

Examiner

Helen C. Kwok

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on February 24, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| <p>1) <input type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: _____</p> |
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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,151,966 (Sakai et al.) in view of U.S. Patent 6,230,563 (Clark et al.).

With regards to claims 1 and 4, Sakai et al. discloses a semiconductor dynamical quantity sensor device comprising, as illustrated in Figures 1-21, a SOI substrate (no reference numeral); a mass (12); a first finger set (18,17) comprising two or more first fingers extends parallel to a first displacement axis; a second finger set (16) comprising at least one second finger extends parallel to the first displacement axis such that the one second finger terminates between and having a least a portion neighboring each of the two first fingers wherein the one second finger is substantially closer to one of the two first fingers (as observed in the figures 3,16,17). (See, column 3, line 65 to column 4, line 48, column 7, lines 56-58 of Sakai et al.). The only difference between the prior art and the claimed invention is an electrical circuit providing a position-dependent electrostatic force having a magnitude varying proportion to relative displacement of the at least one second finger to the two first fingers along the first displacement axis. Clark

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et al. discloses a dual mass vibratory rate gyroscope comprising, as illustrated in Figures 2-14, an electrical circuit providing a position-dependent electrostatic force having a magnitude varying proportion to relative displacement of the at least one second finger to the two first fingers along the first displacement axis. (See, column 11, lines 38-45). It would have been obvious to a person of ordinary skill in the art at the time of invention to have readily recognize the advantages and desirability of employing an electrical circuit providing a position-dependent electrostatic force having a magnitude varying proportion to relative displacement of the at least one second finger to the two first fingers along the first displacement axis as suggested by Clark et al. to the device of Sakai et al. so that the electrostatic force exerted between the movable electrode and the fixed electrodes balances with the electrostatic forces exerted between other movable electrodes and fixed electrodes along the device to restrict moment which exerts rotation to the movable mass and to provide precision along a direction of extension of the first displacement. (See, column 7, line 56 to column 8, line 5).

With regards to claims 2-3, Sakai et al. does disclose dimensions and parameters for the first fingers and the second fingers; however, do not explicitly disclose the specific parameter and dimensions of the first and second finger sets as claimed. Clark et al. teaches that the length to width ration of the finger sets is 10 to 1, as disclose in column 5, lines 51-61. To have set such characteristics as in these claims is considered to have been a matter of design choice that would have been obvious to an artisan of ordinary skill in the art at the time of invention to recognize the

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advantages and desirability to form beams that are compliant to bending but relative stiff to compression and extension. (See, column 5, lines 61-66 of Clark et al.).

With regards to claims 5-8, 10 and 12, the references further disclose the circuit elements as presently claims, like an oscillation feedback loop, capacitive bridge, position sense interface, quadrature detection circuit with a feedback connection.

With regards to claim 9, the references further disclose a third finger set and a fourth finger set to form a second capacitor, as observed in the figures.

With regards to claims 13-19, the claims are commensurate in scope with claims 4-10 and 20 and are rejected for the same reasons as set forth above. Furthermore, Clark et al. suggests a second proof mass disposed about the substrate. (See, Figures 12-14). It would have been obvious to a person of ordinary skill at the time of invention to have readily recognize the advantages and desirability of employing a second proof mass as suggested by Clark et al. to the apparatus Sakai et al. to enable cancellation of differential quadrature error.

With regards to claim 20, the claim is commensurate in scope with claim 1, 4-10, 12 and is rejected for the same reasons as set forth above.

Response to Amendment

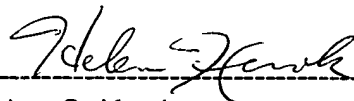
3. Applicant's arguments with respect to claims 1-10 and 12-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen C. Kwok whose telephone number is (571) 272-2197. The examiner can normally be reached on 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Helen C. Kwok
Art Unit 2856

hck
April 25, 2005